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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/358,788	07/22/1999	MICHAEL J. HELLER	0031/81494/JPW/GC	1976
23432 7590 07/06/2012 COOPER & DUNHAM, LLP 30 Rockefeller Plaza 20th Floor NEW YORK, NY 10112			EXAMINER FORMAN, BETTY J	
			ART UNIT 1634	PAPER NUMBER
			MAIL DATE 07/06/2012	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 09/358,788	Applicant(s) HELLER ET AL.	
	Examiner Betty Forman	Art Unit 1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2012.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 49,57,58 and 79-82 is/are pending in the application.
- 5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 49 57-58 79-82 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 21 February 2012 has been entered.

Status of the Claims

2. This action is in response to papers filed 21 February 2012 in which claims 49, 57 and 82 were amended. The amendments have been thoroughly reviewed and entered.

The previous rejections in the Office Action dated 18 October 2011, not reiterated below, are withdrawn in view of the amendments.

Applicant's arguments have been thoroughly reviewed and are discussed below as they apply to the instant grounds for rejection.

Claims 49, 57-58 and 79-82 are under prosecution.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory

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obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 49, 57-58 and 79-82 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-46 of U.S. Patent No. 6,017,696 in view of Cozzette (U.S. Patent No. 5,063,081) and Hollis et al (U.S. Patent No. 5,846,708, filed 23 April 1992).

Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims are drawn to method for analyzing a nucleic acid sample by hybridization on electronically addressable microlocations wherein hybridization stringency is electronically controlled to remove non-specifically hybridized targets. The claim sets merely differ in the arrangement of limitations within the claim sets. For example, independent Claim 49 of the instant claim set defines electronic stringency control while dependent Claims 7, 15 and 45 of the '696 claim set provides this limitation. The instant claims are further drawn to "continuous and constant electric field" to remove unhybridized sequences while dependent Claims 29 and 30 define constant current or voltage. The claim sets further differ in that the instant claims further define the microlocations as comprising permeation and attachment layers.

Cozzette teaches a method similar to the patent comprising immobilizing a binding partner (e.g. DNA) onto one of a plurality of electrodes, contacting with the complementary binding partner and detecting the interaction (Column 52, lines 4-20). Cozzette further teaches the method includes adding a probe complementary to a portion of the target that is not hybridized to the immobilized probe in a sandwich format and detecting formation of the sandwich (Column 52, lines 11-15). Cozzette also teaches that the permselective layer acts as an adhesion promoter for the attachment layer thereby facilitating biomolecule immobilization (paragraph spanning columns 13-14).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the permselective/adhesion promoting layers of Cozzette to the patent electrodes. One of ordinary skill in the art would have been motivated to do so with a reasonable expectation of success based on the teachings of Cozzette. The artisan would have been further motivated to do so for the expected benefits of providing a barrier against interfering ionic species while allowing transport of smaller detectable moieties of interest and facilitating biomolecule immobilization as desired in the art (Cozzette, paragraph spanning columns 13-14).

Additionally, the instant claims are further drawn to subjecting the microlocations to electric field prior to hybridization and applying constant/continuous field to the micro-locations for removal of unhybridized sequences. Concentrating sample molecules at micro-electrode locations was well known in the art at the time the invention was made as taught by Hollis who teaches application of constant/continuous field (see Fig. 11 and related text) and who also specifically teaches that application of an electric field enhances hybridization (paragraph spanning columns 13-14):

An electrical potential can draw charged target structures directly to probes near to or attached to the electrodes, increasing both the rate of hybridization and the total number of target/probe hybridizations that can be conveniently produced in a given experiment

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the patent method by applying an electric field to attract target molecules to the hybridization site to thereby increase the hybridization rate and number of hybridization events as taught by Hollis (paragraph spanning columns 13-14).

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5. Claims 49, 57-58 and 79-82 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8 of U.S. Patent No. 7,582,421 in view of Hollis et al (U.S. Patent No. 5846708, filed 23 April 1992).

Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims are drawn to method for analyzing a nucleic acid sample by hybridization on electronically addressable microlocations comprising a permeation layer wherein hybridization stringency is electronically controlled to remove non-specifically hybridized targets.

The claim sets merely differ in the arrangement of limitations within the claim sets. For example, independent Claim 49 of the instant claim set defines electronic stringency control while dependent Claim 8 of the patent provides this limitation. The claim sets further differ in that the patent defines additional steps of fluorescent labeling and detection. However, the open claim language "comprising" of the instant claims encompasses the additional elements of the patent claims.

Therefore the instant claims are generic to the patent claims and therefore an obvious embodiment.

It is noted that Claims 1 and 6 of the '421 patent are drawn to application of an electric field prior to hybridization.

Additionally, the instant claims are further drawn to subjecting the microlocations to electric field prior to hybridization and applying constant/continuous field to the microlocations for removal of unhybridized sequences. Concentrating sample molecules at

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micro-electrode locations was well known in the art at the time the invention was made as taught by Hollis who teaches application of constant/continuous field (see Fig. 11 and related text) and who also specifically teaches that application of an electric field enhances hybridization (paragraph spanning columns 13-14).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the patent method by applying an electric field to attract target molecules to the hybridization site to thereby increase the hybridization rate and number of hybridization events as taught by Hollis (paragraph spanning columns 13-14).

Response to Arguments

6. Applicant traversed the previous rejection under non-statutory double patenting over U.S. Patent No. 5,849,486 and U.S. Patent No. 6,048,690.

The rejections are withdrawn in view of the amendments and Applicant's comments on pages 9-10 of the response.

Applicant has not presented any arguments to traverse the previous rejections under non-statutory double patenting over U.S. Patent No. 6,017,696 or U.S. Patent No. 7,582,421. The rejections are maintained.

Conclusion

7. No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Betty Forman whose telephone number is (571)272-0741. The examiner can normally be reached on 6:00 TO 3:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Nguyen can be reached on (571) 272-0731. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Betty Forman
Primary Examiner
Art Unit 1634

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